

NAEB HEADQUARTERS
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The attached is a summary of film and TV research done at the Navy Special Devices Center. Any of the research reports indicated may be purchased from the Department of Commerce, Office of Technical Services, Washington 25, D. C.

Since the attached summary sheet is largely the foreword to NAVEXOS P-1220, "Instructional Film Research Reports," you may want to refer to this report. It should be available soon from the Department of Commerce, and copies have been distributed to the libraries of the State Universities.

SPECIAL DEVICES CENTER
OFFICE OF NAVAL RESEARCH
HUMAN ENGINEERING DEPARTMENT

TECHNICAL REPORTS ON
INSTRUCTIONAL FILM AND INSTRUCTIONAL TELEVISION

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Non-government activities may purchase copies from the Department of Commerce, Office of Technical Services, Washington 25, D. C.

INSTRUCTIONAL FILM RESEARCH REPORTS
(PENNSYLVANIA STATE UNIVERSITY)

<u>Title</u>	<u>SPECDEVGEN Technical Report No.</u>	<u>Dept. of Commerce PB No.</u>	<u>Price</u>
Instructional Film Production, Utilization and Research in Great Britain, Canada, Australia	269-7-1	105782	\$.75
Music in Motion Pictures: Review of Literature With Implications for Instructional Films	269-7-2	105783	.50
The Relative Effectiveness of Massed Versus Spaced Film Presentation	269-7-3	105784	1.00
Commentary Variations: Level of Verbalization, Personal Reference, and Phase Relations in Instructional Films on Perceptual-Motor Tasks	269-7-4	105785	1.00
Effects of Learner Representation in Film-Mediated Perceptual Motor-Learning	269-7-5	105786	1.00
Learning Theories and Instructional Film Research	269-7-6	105787	.25
Relationship of Length and Fact Frequency to Effectiveness of Instructional Motion Pictures	269-7-7	105788	.50
Contributions of Film Introductions and Film Summaries to Learning from Instructional Films	269-7-8	105789	.75
The Effect of Attention Gaining Devices on Film-Mediated Learning	269-7-9	105790	.75
The Effects of Prestige and Identification Factors on Attitude Restructuring and Learning from Sound Films	269-7-10	105791	.50

<u>Title</u>	<u>SPECDEV CEN Technical Report No.</u>	<u>Dept. of Commerce PB No.</u>	<u>Price</u>
Effects of Training of Experimental Film Variables Study II: Verbalization "How It Works", Nomenclature, Audience Participation, and Succinct Treatment	269-7-11	105792	\$.50
Effect of Repetitive Film Showings on Learning	269-7-12	105793	.25
Relative Effectiveness of Instruction By: Films Exclusively, Films Plus Study Guides, and Standard Lecture Methods	269-7-13	105794	.50
The Classroom Communicator	269-7-14	105795	.50
The Film Analyzer	269-7-15	105796	.50
The Effects of Inserted Questions and Statements on Film Learning	269-7-16	105797	.50
Effects on Training of Experimental Film Variables, Study I: Verbalization, Rate of Development, Nomenclature, Errors, "How-It-Works", Repetition	269-7-17	105798	.50
Comparison of the Audio and Video Elements of Instructional Films	269-7-18	105799	.50
<u>Instructional Film Research 1918-1950</u> NAVEXOS (P-977) (Chapter 9 covers the content of Special Report #1)	269-7-19	111000	2.50
Practical Principles Governing the Production and Utilization of Sound Motion Pictures	Special Rpt. #1	105687	.50
Effect of Film-Viewing Practice on Learning From Instructional Films	269-7-20	111008	.50
The Value of Note-Taking During Film Learning	269-7-21	111064	.50
Effects of Mental Hygiene Films on Self-Regarding Attitudes (The)	269-7-22	111009	.50
Film Profiles	269-7-23	111065	.50
Relationship of Anxiety to Learning from Films	269-7-24	111066	.50
Evaluation of a Procedure for Using Daylight Projection of Film Loops in Teaching Skills	269-7-25	111093	.50

<u>Title</u>	<u>Technical Report No.</u>	<u>Dept. of Commerce PB No.</u>	<u>Price</u>
Daylight Projection of Film Loops as the Teaching Medium in Perceptual-Motor Skill Training	269-7-26	111067	\$.50
Comparison of Mental Practice and Physical Practice in the Learning of Physical Skills	269-7-27	111094	.50
Relative Effectiveness of Color and Black and White in Instructional Films	269-7-28	111095	.50
Instructional Effect of the Film "How to Operate the Army 16MM Sound Projector Set"	269-7-29	111167	.25
The Effects of Knowledge of Test Results on Learning of Meaningful Material	269-7-30	111142	.50
Logistics of Sound Motion Pictures for Military Training	269-7-31	111113	.50
Effects of a Stereoscopic Sound Motion Picture on the Learning of a Perceptual-Motor Task	269-7-32	111143	.50
Effects on Learning of the Prominence of Organizational Outlines in Instructional Films	269-7-33	111115	.50
The Relationship of Optical Effects and Film Literacy to Learning From Instructional Films	269-7-34	111114	.50
The Effect of a Pre-Film Test on Learning From an Educational Sound Motion Picture	269-7-35	111172	.25
<u>Instructional Film Research Reports</u> NAVEXOS P-1220 (This contains 34 reports 269-7-1 through 35 with the exception of 269-7-19)	269-7-36	Unknown	Unknown
Optimum Physical Viewing Conditions for a Rear Projection Daylight Screen	269-7-37	Unknown	.50
Evaluation of Two Kinescopes	269-7-38	Unknown	.50
The Effects and Interactions of Rate of Development, Repetition, Participation and Room Illumination on Learning From a Rear-Projected Film	269-7-39	Unknown	.50
A Bibliography of Production, Utilization and Research on Instructional Films	269-7-40	Unknown	Unknown
The Application of Sound Motion Pictures For Recording Billet Analysis Information. Technical Details in Bureau of Naval Personnel Technical Bulletin 53-6 distributed by Special Devices Center only.	269-7-41	Unknown	.50

<u>Title</u>	<u>Technical Report No.</u>	<u>Commerce PB No.</u>	<u>Price</u>
Training Film Evaluation: Comparison Between Two Films on Personal Hygiene: TF8-155 and TF8-1665 (Distributed only by Special Devices Center)	269-7-50		

INSTRUCTIONAL TELEVISION RESEARCH REPORTS

<u>Title</u>	<u>SPECDEV CEN Technical Report No.</u>	<u>Dept. of Commerce PB No.</u>	<u>Price</u>
"Survey of Television Utilization in Army Training"	530-01-1	111251	.50
"Learning from Kinescopes and Films"	20-TV-1		
"Visual Principles for Training by Television"	20-TV-2		
"The Comparative Effectiveness of Instruction by Television, Television Recordings, and Conventional Classroom Procedures"	476-02-2 NAVEXOS P-850-2	104414	.75
"A Study in Learning and Retention"	476-02-3 NAVEXOS P-850-3	105493	.75
"The Effectiveness of Television Instruction in Training Naval Air Reservists" (Technical version of #476-02-2)	4716-02-S2		
"A Study of Learning and Retention from Television Instruction Transmitted to Army Field Force Reservists" (Technical version of #476-02-3)	476-02-S3		

SUMMARY OF THIRTY-FIVE INSTRUCTIONAL FILM RESEARCH REPORTS (Numbers in parentheses refer to the applicable 269-7 series reports)

FOR THE CURRICULUM PLANNER

1. Effectiveness. Films are at least as effective as other comparable means of instruction (-13, -25). Films alone can be used to teach factual information (-13, -19).
2. Motor-Skills. Motor-skills that are at least as complex as operating a sound motion picture projector or performing gymnastic skills can be taught by means of films alone (-26, -29). An instructor can increase his effectiveness by using film loops to teach a skill to groups while he devotes his time to coaching individuals (-25).
3. Mental Hygiene. In addition to being effective for teaching skills and factual information, suitable films can be used to improve personal adjustment (-22).

4. Specific Films. Specific content in films is required to meet specific instructional objectives. Films with broad superficial content aimed at a generalized audience are likely to be less effective than films with well specified content aimed at an audience of known characteristics (-19, -31).
5. Specific Audience. Films should be prepared for a specific audience (-31).
6. Purposeful Use. Use films to teach. Films are likely to be more effective if they are integrated into the curriculum, and if they are related to carefully formulated instructional objectives (-31).
7. Consistent Use. People learn to learn from films (-20). When films are used as fill-in, for entertainment, or if the content does not appear to the trainee to be pertinent to the course being studied, there is likely to be less learning than would otherwise be the case (-24).

FOR THE FILM PLANNER AND PRODUCER

1. Camera Angle. Show a performance on the screen the way the learner would see it if he were doing the job himself (-5).
2. Rate of Development. The rate of development of a film should be slow enough to permit the learners to grasp the material as it is shown (-17).
3. Succinct Treatment. Presenting only the bare essentials or rapid coverage of subject matter may be very ineffective (-11).
4. Show Errors. Learning performance skills from films will be increased if you show common errors and how to avoid them (-17).
5. Repetition. Organize a film so that important sequences or concepts are repeated in a variety of ways (-17). Repetition of films, or parts within a film, is one of the most effective means for increasing learning to a required level (-12).
6. Organizational Outline. Films which treat discrete factual material appear to be improved by the use of an organizational outline in titles and commentary (-33).
7. Introductions. Present relevant information in the introduction and tell the viewer what he is expected to learn from the film (-8).
8. Summary. Summarize the important points in the film in a clear concise manner. Summaries probably do not significantly improve learning unless they are complete enough to serve as a repetition and review (-8).
9. Visual Potentialities. Take advantage of the ability of the motion picture medium to show motion, to speed up and slow down motion, to telescope and otherwise control timing of events and processes, to bridge space, and to organize events and actions (-19, -31). The visuals and commentary in a film should reinforce each other (-18).

10. Picture-Commentary Relationship. The commentary of a typical informational film appears to teach more than only the pictures of that same film when learning is measured by verbal tests (-18). This does not necessarily mean that the commentary has greater inherent effectiveness than pictures; it may mean that procedures are currently relying more heavily on commentary than on pictures or on the optimum integration of the two. With films designed to teach performance skills, where learning is measured by nonverbal tests, the pictures appear to carry the main teaching burden (-4).
11. Concentration of Ideas. Ideas or concepts should be presented at a rate appropriate to the ability of the audience to comprehend them (-7).
12. Commentary. The number of words (per minute of film) in the commentary has a definite effect on learning. Care should be taken not to "pack" the sound track (-4, -11, -17).
13. Use of Personal Pronouns. Use direct forms of address (imperative or second person) in film commentaries. Avoid the passive voice (-4).
14. Nomenclature. Introduction of new names or technical terms in a film imposes an additional teaching burden on learners, and may impede the learning of a performance skill (-11, -17).
15. Special Effects. Special effects used as attention getting devices have no positive influence on learning (-9).
16. Optical Effects. A film in which such optical effects as fades, wipes, and dissolves have been replaced by straight cuts, teaches just as effectively as a film which uses these effects (-34).
17. Stereoscopic Films. In the one experiment conducted, the addition of stereoscopic vision did not increase learning of a motor skill performance (-32).
18. Color. Experimentation has not yet demonstrated any general overall increased learning as a result of using color in instructional films (-28).
19. Music. Preliminary experimentation suggests that music does not add to the instructional effectiveness of an informational film (-19).
20. Pre-testing. Scripts, workprints, demonstrations and final prints can be evaluated quickly using the learning profile method of film evaluation which requires a group of trainees to estimate their own learning (-23).
21. Film Loops. Short film loops which can be repeated continuously as many times as desired, appear to be a good way of teaching difficult skills (-25, -26, -27).
22. Participation. Learning will increase if the viewer practices a skill while it is presented on the screen, provided the film develops slowly enough, or provided periods of time are allowed which permit the learner to practice without missing new material shown on the screen (-17).

FOR THE INSTRUCTOR

1. Let the Film do the Instruction. Good films can be used as the sole means for teaching some kinds of factual material and performance skills. Where the instructional situation makes it advisable, take advantage of this possibility (-13, -17, -26, -29).
2. Instruct Students to Learn from Films. Tell the viewers firmly that they are expected to learn from the film and if possible, tell them that they will be tested and do so (-24). This procedure will result in increased learning.
3. Increase the Amount of Learning. Learning can be increased by repetitive showings (-12, -16), pre-testing (-35), post-testing with knowledge of results (-30), and introducing the film and stating the purpose and importance of the showing (-24).
4. Use of Study Guides. Ability to learn from films improves with practice in learning from films (-20). Trainees will learn more if printed study guides are used before and after film viewing (-13).
5. Distractions. Note-taking should not be encouraged during the average film showing because it interferes with attention and hence learning (-21).
6. Use Film Loops in the Practice Area. One showing of a film dealing with a complex skill may be insufficient (-29). Show a film in the practice area so that the student can easily refer to the film model as often as necessary. This can be accomplished by rear projection of film loops on daylight screens in the work area (-25, -26, -27).
7. Use Mental Practice. Men can partially learn to do a skill by watching a film and imagining that they are performing the skill and by going through the skill "mentally", even though they do not have the equipment available (-27). Films can provide a model for guided "mental" practice.
8. Length of Film Sessions. Film viewing sessions of informational material can extend to at least one hour without reduction in training effectiveness (-3).
9. Evaluate Film Showings. Do not assume that learning has occurred as a result of showing a film. Evaluate the effect of a film by giving a test (-30, -31).

FOR THE STUDENT

1. Learn from Films Alone. You can learn from films alone (-13), and the more films you see, the more you learn from other films (-20).
2. Learning is Your Job. Films may contain many pleasant devices that might cause you to forget their serious instructional purposes. Films are being used to train you and you are expected to learn from them (-9, -23, -24).

3. Discover the Instructional Purpose. If it is not clear to you, ask your instructor what the purpose is of the film showing, and how the material relates to your training (-31).
4. Nomenclature. Ask your instructor which names of parts must be learned (-11, -21).
5. Make Certain You are Learning. You will know when you are learning (-23). If you do not think you are learning call this to your instructor's attention (-25).
6. Watch for Outlines. Outlines or titles organize a film presentation and indicate how the various topics are related (-33). It will help you to learn if you will look for and study them carefully.
7. Concentrate on the Sound. The sound track often covers the important material to be learned in an informational film (-18).
8. Mentally Practice. Imagine that you are doing the job, or mentally imitate the operations when you are learning from a skill training film (-27).
9. Ask for a Re-showing. If you didn't learn the first time, ask for a repeated showing (-12).
10. Note-taking. You may miss something if you try to take notes during a film. Don't take notes unless you have plenty of time and will review them (-21).
11. Ask for Test Results. If you are tested on film content, ask to have the correct answers to the questions explained to you after the test so that you can improve your learning (-30).

SUMMARY OF INSTRUCTIONAL TELEVISION RESEARCH REPORTS

A. LIVE INSTRUCTIONAL TELEVISION FOR THE CLASSROOM

1. Effectiveness A television program can be at least as effective as comparable means of instruction (476-02-S2, 476-02-S3).
2. Acceptance Television instruction is well liked (476-02-S2, 530-01-1). Well prepared programs were highly acceptable after an eight week period of television training (476-02-S3).
3. Mass Training Television is a feasible and effective means for instructing widely separated groups (476-02-S2, 476-02-S3).
4. Principal Problems (476-02-S3)
 - a. Procurement and training of personnel for planning and producing television lessons.
 - b. Procurement of television equipment and personnel to maintain it.
5. Retention of Learning Most learned material was retained over a six week period (476-02-S3).

6. Level of Instruction All grades of personnel learned from television programs (476-02-S3).
7. Novelty Effect In 1950 trainees said that the television instruction they received was more effective than the average training film. This instruction was carefully prepared, skillfully presented and the trainees tried to learn (476-02-S3).
8. Effective Presentations Items that were explicitly covered were well learned. Sketchily treated items were not learned (476-02-S3).
9. Dramatic or Factual Learning occurred when specific information was presented. Little learning occurred from dramatic or situational presentations (476-02-S3).
10. Introductions Speeches by high-ranking officials were with few exceptions too long, quite boring, poorly reproduced and detracted from the instructional value of the programs (476-02-S3).
11. Screen Size Twelve to twenty inch television screens were said to be adequate by trainees (476-02-S3).
12. Applicability A criteria check list has been developed to determine courses of instruction which are suited for television instruction (530-01-1).
13. Single Camera One television camera will fulfill most military training needs but for reliability and flexibility, two cameras are more desirable (530-01-1).
14. Instructors Qualified instructors can be trained to teach by television in a relatively short time (530-01-1).
15. Minimum Equipment Television Experience has indicated that a minimum of equipment gives the greatest training per dollar expended for televising instruction (530-01-1).
16. Courses Effective television training has been carried out in large number of subject areas (530-01-1).
17. Films Films are effective on television (530-01-1, 476-02-S2, 476-02-S3).
18. Television Recordings (kinescopes) Film recordings of television programs are a valuable by-product (530-01-1, 20-TV-1, 476-02-S2).
19. Mobile Television A mobile television studio and associated equipment can be used to present and record television programs.

B. FILM RECORDINGS OF TELEVISION PROGRAMS

1. Effectiveness Film recordings of television programs (kinescopes) are very satisfactory for military training even though picture quality may be poor (20-TV-1, 476-02-S2).
2. Use Kinescope recordings were recommended for training instructors, duplicating lessons, disseminating new developments and

as a substitute for instructional films (530-01-1).

3. Color Color, unless it is essential to the subject being taught, does not increase the effectiveness of television training (20-TV-1).

C. SPECIALIZED TELEVISION APPLICATIONS

1. Training Device Viewing Training devices may be televised to a larger group than can normally see them (530-01-1). Thirty-one principles for improving visibility have been discovered (20-TV-2).
2. Security Applications Television signals containing classified information can be transmitted to the classroom over a closed circuit cable (476-02-S3).
3. Critical Factors Television expense and labor can be more easily justified when the training situation is dangerous or mass training is essential (530-01-1).

D. INCIDENTAL TELEVISION INSTRUCTION (Audience may or may not watch)

1. Dramatizations Dramatic treatments brought about less learning than other types of treatment (476-02-S2).
2. Attitudes Polls have shown a definite acceptance by civilians of programs dealing with book reviews, social problems, history, lectures etc. (530-01-1).

RECOMMENDATIONS

1. Television should be used in training when the unique characteristics of television make its use clearly advisable (Dangerous situations, special applications).
2. Since television is a good instructional media it is important to discover whether it can practically compete with other instructional media. This can be done by considering its cost, average effectiveness, personnel requirements and programming requirements. Television systems should be developed and put in use that tend to set television in a better competitive position (minimum equipment and personnel).
3. Television film records should be produced competitively with simplified filming techniques such as newsreel type films and magnetic sound track films. They should be produced to meet the specific needs of the military not presently met by the photographic centers.

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